Claim 7 (and similar worded claims 8-10) includes features that find support in the paragraph bridging pages 9 and 10 of the present application and the corresponding figure 7A and 7B. (See also 8A and 8B for an illustration of the dividing point for the lower rates).

Claims 11 and 12 find support, for example, in the disclosure directed at the process pressure on page 6, lines 30 and 31 and page 7, lines 10 and 11, respectively. Claims 13 and 14 include similar language as that of claim 11.

The Office Action includes a rejection of claims 1-3 as being unpatentable over Collins et al. ('501) in view of Szwejkowski et al. ('398). This rejection is respectfully traversed for the reasons set out below.

As noted in the Examiner's description of the '501 reference, the '501 reference discloses an etching method using a plasma reactor chamber having an inductively coupled antenna driven by RF energy. This conforms to the Field of the Invention discussion and Abstract of the '501 reference, which each also describe a method involving an inductively coupled plasma generation inside the reactor dome for etching. Various secondary magnetic and voltage secondary enhancement techniques are also disclosed for use in conjunction with the inductively coupled plasma generator in the '501 reference.

In recognition of the '501 reference failing to disclose or suggest the claimed etching gas supply rate, there is indicated in the Office Action that:

> Szwejkowski discloses a process for etching a polysilicon film on a silicon wafer in a vacuum etch chamber using Chlorine etching gas at a rate of from about 40 to about 100 sccm into a 3 liter vacuum processing chamber (Col. 4, lines 19-22).
>
> Hence, one skilled in the art would have found it obvious to modify Collin's etching gas flow rates by using the etching gas flow rate as taught by Szwejkowski because

> Szwejkowski states that using the gaseous component and flow rate of his invention will not result in the undesirable formation of particles on the wafer surface and will not condense at room temperature in the lines used to bring the etchant gases to the vacuum etch chamber. (Col. 5, lines 49-54)

However, a review of the plasma generating apparatus and method in the '398 patent, associated with the above referenced "etching gas rate of from 40 to about 1000 sccm into a 3 liter vacuum processing chamber," reveals that it is far removed from the inductively coupled plasma generation system of the '501 reference. The description in column 3, lines 36-41 of the '398 patent pertains to the plasma generating apparatus actually used with the quoted flow rate and sets forth:

> "The wafer to be etched is conventionally mounted in the vacuum chamber or a cathode support which is connected to the negative terminal of a grounded power supply. During the etch, a plasma is ignited between the cathode and the provided walls of the chamber and the ground showerhead."

Thus, the flow rate example provided in '398 reference is based on an apparatus and method that is quite different from the inductively generated plasma system of the '501 reference. There is also lacking any indication or suggestion that the flow rate of the '398 reference is equally applicable to a different method and apparatus of the '501 reference. Accordingly, it is respectfully submitted that a prima facia case of obviousness has not been made out with regard to the above combination.

Moreover, as described in the background portion of the present application concerning prior art techniques in page 1, col. 21-27:

> an inductive coupled plasma processing system capable of operating at a low process pressure on the order of several mTorrs is employed for carrying out a polysilicon film etching process because the process pressure of a conventional diode parallel-plate plasma etching system is excessively high and the diode parallel-plate plasma etching system is unable to etch the surface of the polysilicon film in a sufficiently high uniformity.

This is an example of the characteristics (flow rate requirements, plasma qualities, etc.) from one technique to another being different, meaning that a flow rate indication under one technique does not carry over to a quite different technique of plasma generation.

In the Office Action, the asserted motivation for the combination is said to be:

> "because Szwejkowski states that using the gaseous component and flow rate of his invention will not result in the undesirable formation of articles on the wafer surface and will not condense at room temperature in the lines used to bring the etchant gases to the vacuum etch chamber."

The referenced text, however, when considered in its entirety, sets forth that it is the use of high purity gaseous components in the etching process which avoids the undesirable formation of particles on the wafer surface and condensation at room temperature in the lines used to bring the etchant gases to the vacuum etch chamber. In other words, the stated avoidance of particle formation and condensation in the '398 reference is not the positive effects gained from a particular limitation of flow rate, but rather those gained from the use of high purity gas. This point is clearly apparent when compared with the section discussing the problems involving the BCl_3 gas used by the prior inventions (Column 1, lines

39-44). Further, due to the low purity of the BCl_3 gas used in the prior art, there existed problems of the undesirable formation of particles and condensation of the apparatus used to convey the gas due to low system pressure. The '398 reference makes the claim that it is possible to obtain gas with a high level of purity with the subject chlorine/oxygen, combination thereby eliminating these problems, and not any correlation between flow rate and purity.

In view of the above-described deficiencies in the '501 and '398 reference, it is respectfully submitted that claim 1 (which includes reference to RF plasma generation in combination with the above noted flow rate range) is patentably distinct over the prior art together with the dependants 2-14. Accordingly, favorable reconsideration at the Examiner's earliest convenience is earnestly solicited.

Respectfully submitted,

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March 15, 2000